

**SIMRIL'S EUREKA;**

OR

**SYSTEM OF CUTTING GARMENTS**

TO ACCOMPANY THE PATENT

**"Circular Measure and Shoulder Regulator."**

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**BY MILES G. SIMRIL.**

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NEW-YORK;

J. A. FRAETAS & Co., PRINTERS, 7 SPRUCE-ST.

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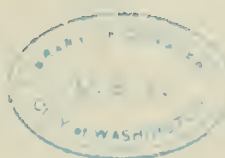
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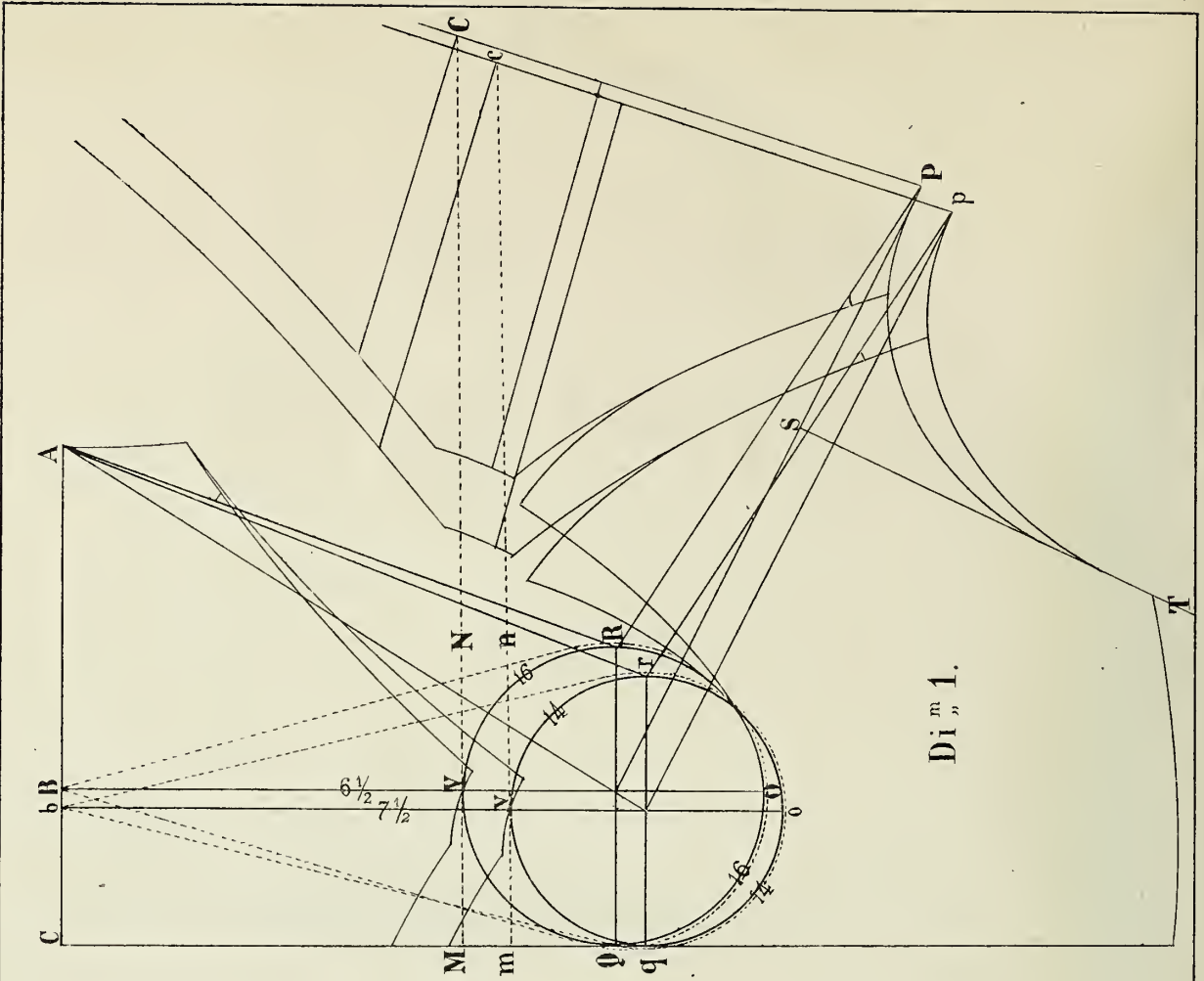
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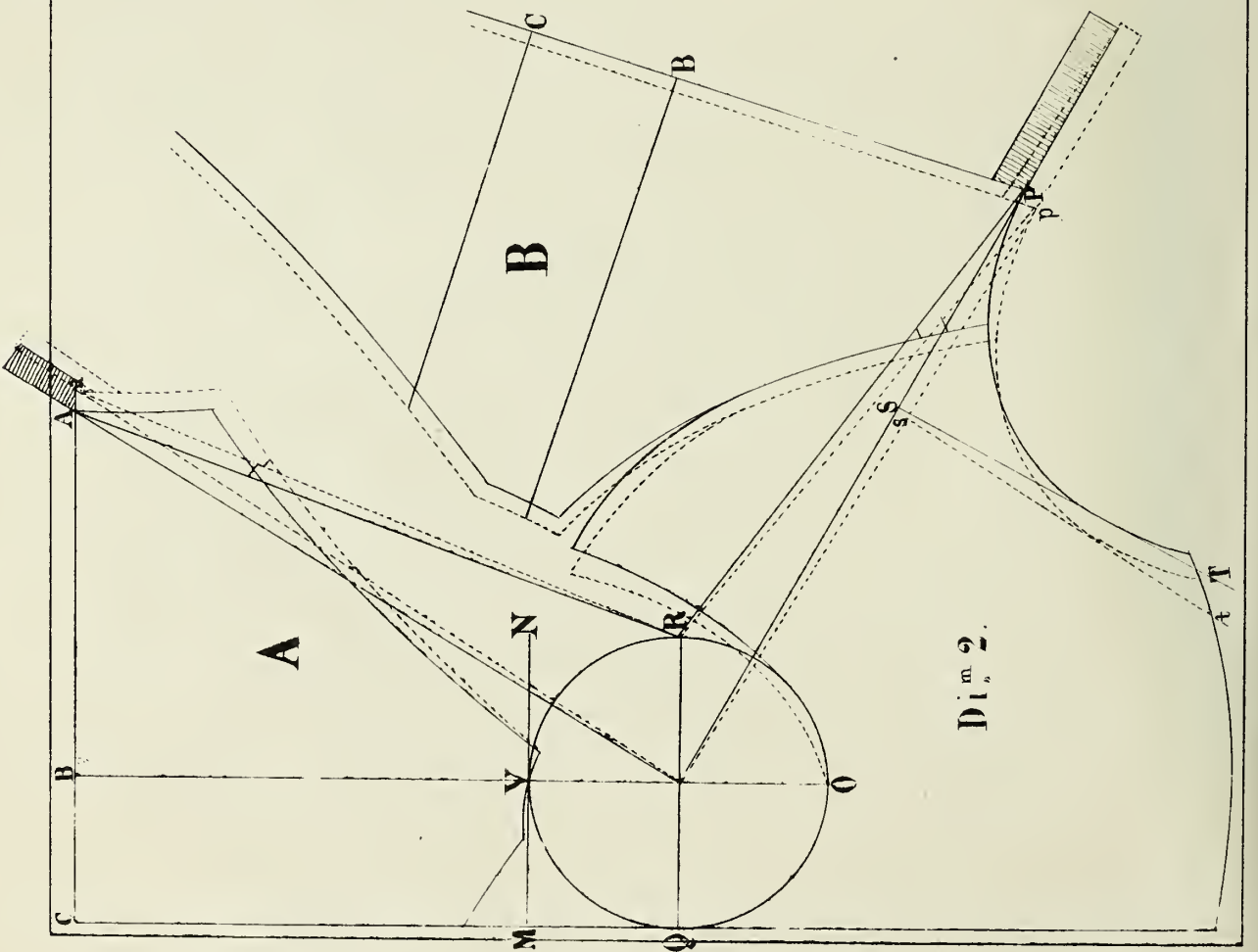
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Di. 1.



Di. 2.

## TO THE TAILORS OF THE UNITED STATES.

In presenting to the trade a "new invention" it is deemed proper to say a few words by way of directing the attention to the difficulties it is intended to obviate, as well as to the peculiar method by which they are obviated. No Tailor, who has given the art of drafting the least degree of attention, has failed to discover that it is yet in a very limited state of improvement; and that to attain to any degree of accuracy in fitting the human form is a matter dependent more upon long-practised skill and experience, than upon any certain rules and principles. There is yet too much *guess-work*: too much drafting by the eye. In one stage of our labor, we are left solely to our skill in *guessing*: in another stage to certain fixed rules and proportions, which, although they may suit in a majority of instances, do not admit of such variations as the peculiar form and structure of each individual may require, and are, therefore, in not a few instances, sources of positive error.—The young beginner has to spoil his dozens of garments and submit to numerous other impediments to his success in business by "bad fits" and loss of time and labor in altering and amending, before he can hope to attain that degree of skill and experience which will enable him to guard against such mishaps. The publisher of this invention cannot hope that he has succeeded in removing every obstacle or difficulty which meets the Drafter in the execution of his task. He can only hope that his invention has obviated a few of those difficulties, and, as he believes, a few of the most important ones.

In an experience of many years, it has been the lot of the inventor to be often unsuccessful in his attempts to secure a correct fitting: and as often as such has happened, he has endeavored to trace back his steps to ascertain wherein his error lay. He has observed—and others doubtless have likewise observed—that bodied garments oftener fail to fit about the scye-joints and shoulders, than in any other parts; from which it is evident that the source of error must lie in drafting those portions of the garment. Various plans have suggested themselves for obviating particular difficulties; but not until the plan set forth in this invention was hit upon, could he feel, whilst drafting, any degree of certainty that he would be successful in fitting the form for which he was drafting. He therefore presents his invention to the trade; believing that it furnishes a method by which the human form may be fitted with accuracy; one which is peculiarly adapted to obviating the uncertainty which arises in drafting those portions of garments above alluded to: and which affords, not a fixed and invariable rule, but which adapts itself to the peculiar form and structure of each individual.

With a view more fully to illustrate the utility of my invention, I would beg leave to point out a few of the sources of error in drafting by the ordinary modes, and to show how those errors are obviated in this invention.

### SEE PLATE 1—DIAGRAM 1.

It is scarcely necessary to remark, that it is all important to ascertain with accuracy the correct distance from the point B, through the centre of scye to front of scye at O. This distance, by the most approved methods of drafting, is established by certain proportions of a measure taken from B, around scye-joint, and again back to B, *no regard whatever being paid to the size of scye*. To see the incorrectness of this method, we have but to take two persons, equal in all their several measures, except the measure at width of back and around scye: the one having width of back 6 1-2 inches, the other 7 1-2 inches; and the one measuring around scye 14 inches, the other 16 inches. Now in these two persons, the shoulder measure from B around scye, and again to B, will be found exactly the same. If, therefore, this measure be proportioned into halves, and thirds, and twelfths, and twenty-fourths, after the usual mode, these proportions will establish the *same distance* from B to O, for both persons; for the measure being the same on both persons, its proportions will of course be the same, and give the same distance, when according to the actual state of the case, the two persons, having arm-joints of different sizes and backs of different widths, should have a different distance from B to O:—the one being properly and correctly B O, the other *b o*. The plan proposed is to measure the width of back from B to V, and the thickness or diameter of scye added to this will be the correct distance from V to O; and it is at once perceived, that if to the measured width of back, you add the thickness or diameter of the "circular measure"—it being set to the exact size of scye—you *cannot fail* to have the correct distance from B to O.

In like manner the distance from M to C is established, by certain proportions of the same shoulder-measure from B around scye and again to B. This measure, as in former case, being the same in both persons, will give the same proportions, and consequently the same distance from M to C, and from *m* to *c*. This will locate the scye in the same place, and make it of the same size in both garments, when according to the actual state of the case there should be 2 inches difference. For this difference, this invention makes provision, the "circular-measure" being not only the exact size of scye, but also being in the correct position and of the correct shape.

Now it is not an un-supposable case, that two persons, although agreeing in all other proportions, may yet differ very much in width of back and around scye. The observations of every day, teaches that the hands, the feet, the head, of persons may differ, and the same persons agree in all other proportions. It is then a fair deduction, that the width of back and the size of scye, as well as its location on the body, are as liable to vary as any other parts or portions of the body. It comes fully within the experience of every Tailor that persons do so differ; and it is by drafting without attending to this difference that many errors are committed.

It is deemed unnecessary to enter into any further exposition of the errors and uncertainties to which other systems are subject.

### SEE PLATE 1—DIAGRAM 2.

This diagram is intended to illustrate the principal use of the "Shoulder-Regulator," as attached to the circular measure: by means of which, in drafting, the shoulder is pitched forward or backward, according to the shape of the person.

Suppose two persons to be of the same size in all the several measures, except the one from A at top of back to C at bottom of scye, and that by that measure one is 8 inches, the other 7 1-2 inches. Let the plain black lines represent the draft for the one who measures 7 1-2 inches from A to C; and the dotted lines represent the draft for the one who measures 8 inches. If now the distance from C be increased to *a* on back A, it will increase to the same extent from C to *p* on back B. You will observe that all of the back B does not move either towards you or from you; but the distance only is increased from C to *p*; and the back moves to the right or left on line C. You will notice, as one arm of the Regulator is raised at A, top of back, it throws point P towards you, and as shoulder measure No. 1 will then commence higher up from C on back A, a greater proportion of the measure will be taken up in passing round the circular measure from *a* to Q, which leaves a less proportion to be applied from Q to *p*, and thereby shortens the shoulder strap from O to *p*. In like manner, you will observe that if the arm of Regulator at A be lowered towards C on back A, the other arm would throw point P from you: and as measure No. 1 would, in that case, commence at a point lower than A, it would terminate at a point higher than P, and thereby lengthen the shoulder strap and throw back B to the right. Observe, that as the shoulder strap is shortened and thrown towards you, the point T, at end of line S T, is sunk lower; and as the shoulder strap is lengthened, and thrown from you, the same point T is raised.

These few particulars will give some general idea of the nature and utility of my invention. Its practical operation and the many advantages which incidentally arise from its employment, can only be ascertained by a careful attention to the directions hereafter given for its application in drafting.

It will not be attempted in this publication, to set forth a complete system of drafting all the several garments. This would but enhance the cost, without by any means being an indispensable accompaniment to the invention.

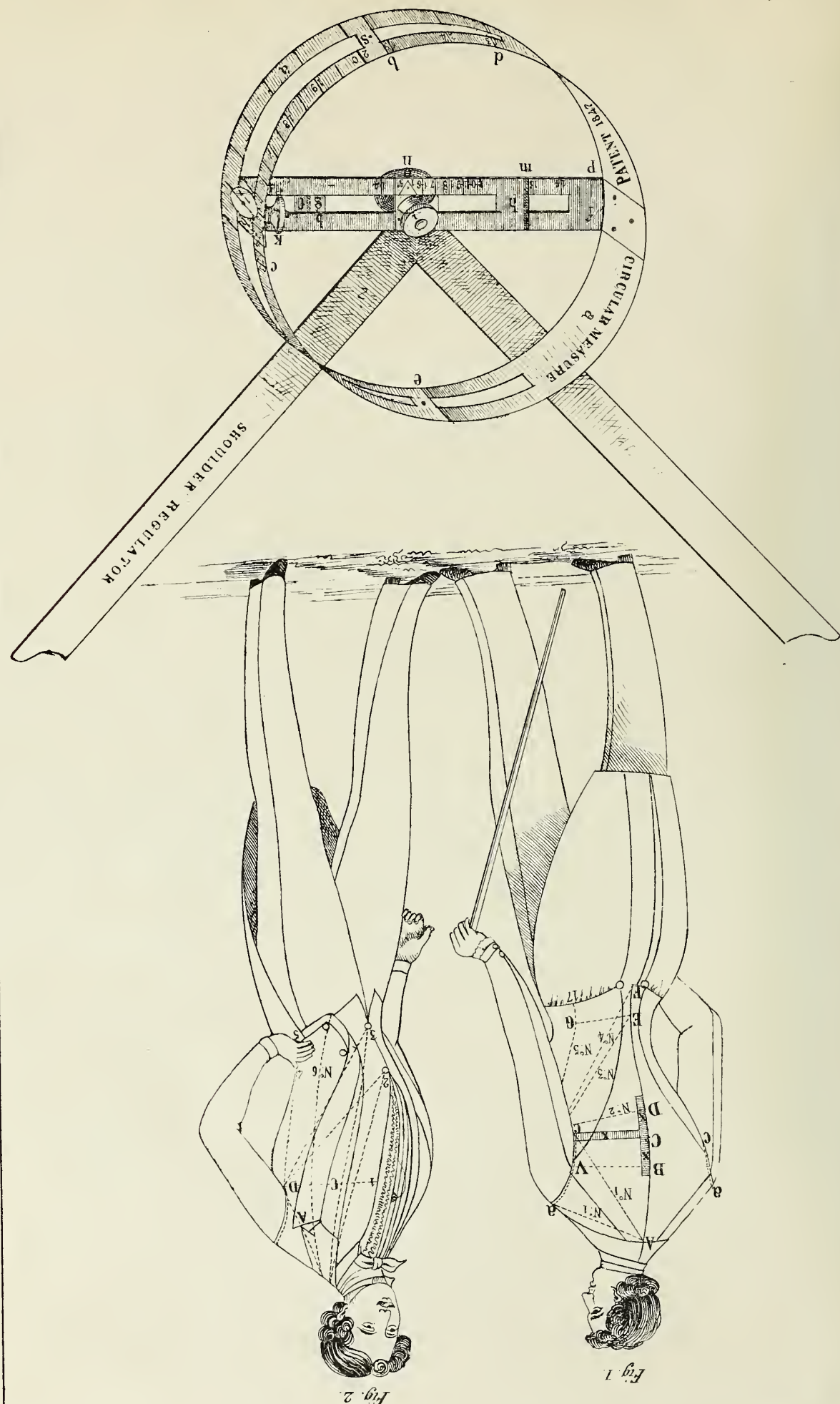
The inventor flatters himself that his invention will be found, not only a convenient arrangement for applying the scye and shoulder measures *combined*, but an arrangement which secures the best possible application of those measures; and guards against the numberless uncertainties and inaccuracies which attends the usual modes, and which it requires the greatest skill to avoid.





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## METHOD FOR TAKING MEASURES.

(See Plate 2—Fig. 1.)

In taking measures, the person must stand in his *natural position* with his coat buttoned.

Take the instrument called the T, and place its long arm under the person's right arm, and the two short arms to range with the centre back seam of the person's coat, as represented by instrument marked XXX on Figure 1. With chalk make a mark on the back seam at the notch of the T, as at C on Figure 1.

With the measuring tape, take the measure of scye-joint, called the "scye-measure," by passing the tape *around* the joint in the direction of the dotted lines from *c* to *a* on Figure 1. (Note.—That portion of the measure which is visible on the figure—viz, from *c* to *a*—should be parallel with the centre back seam A F.) Whilst the tape is in this position, you will draw a mark on the person's coat with chalk, along that edge of the tape which is next to the back-seam. Set down size of scye-measure.

You will next take the measure from B to V, that is, from the back-seam to the chalk mark which was made along the edge of tape, as above directed. This is called the "width of back;" and it must be taken with the arm hanging naturally, as raising the arm would stretch the distance. Note down this measure.

You will now raise the arm at right angles with the body, and take the measure to the elbow and to the hand, and also the size or measure round the elbow and hand.

In the next place, make a mark on the person's back at A, i. e. the socket bone; one at D, a point opposite to the blade bone; one at E, the hollow of waist; one at F, the extreme length of waist; and one at G, the hollow of side above the hip, opposite to E and some 6 or 7 inches from it. Place the end of

tape on socket-bone at A, and note the distances of measures from A to C; from A to D; from A to E; and from A to F; and also to the bend of knee, lower or higher as fashion may direct.

You will now hold one end of tape at A, and take the following measures:

MEASURE No. 1.—Pass the tape beginning at A, and passing over the right shoulder in front, and under the arm and back again to A.—(See No. 1 on Figure.)

MEASURE No. 2.—The tape being still around the arm as above, you will lower your hand till it passes over the blade-bone to the mark made at D.—(See No. 2 on Figure.)

MEASURE No. 3.—Lower your hand still further until the tape reaches the mark made at E.—(See No. 3 on Figure.)

MEASURE No. 4.—Lower your hand still more until the tape reaches mark made at F.—(See No. 4 on Figure.)

MEASURE No. 5.—Lower your hand until the tape comes to mark at G and to 17.—(See No. 5 on Figure.)

MEASURE No. 6.—Bring your hand to the front, and take measure from A, passing over the shoulder and down the breast, to length in front.—See Figure 2.

MEASURE No. 7.—Take the distance from E, hollow of waist, to G, the hollow of side, above the hip. Note down the several measures.

Take the breast measure and waist measure, passing the tape around the body at breast and waist, under the coat.

Note: To obtain point B on figure from which "width of back" is taken, you will go up from point C a distance equal to a *fraction*, less than one sixth of scye-measure.

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## DIRECTIONS FOR ADJUSTING THE INSTRUMENT.

(See Plate 2—Circular Measure.)

Having finished taking the measures, you will now proceed to adjust the instrument to the exact size of the scye-measure.

Suppose the person has measured 15 inches around the scye-joint. In that case you will slide the *outside* lap of the "circular measure" until its extremities comes to the inch-mark 15 (marked on the *inside* lap) as at *b* on diagram. You will notice that one of the cross-bars slides in the grooves of the ring: slide this end of the bar along the grooves until the index (*l*) comes to number 15 (marked on the

*outside* lap). This done, fasten the thumb-screw (*k*). You will next slide the *upper* cross-bar (*hh*) of the diameter until the end of it comes to number 15, (marked on the *under* bar) as at *m* on Diagram. Then move the centre-piece, the index mark comes to number 15 (marked on *upper* bar) as at *n* on diagram. This done, fasten the thumb-screw (*i*).

The circular measure will now represent a scye-measure of 15 inches, with the vertex of the shoulder-regulator in the centre.



(See Plate 3—Back A.)

The line from A to 18 represents the edge of cloth, nap running to the left. On this line take the distance from A to 18, for the length of coat, as measured from the socket-bone to the knee-joint, lower or higher as fashion may require. With end of tape at A take a distance from A to G, equal to the extreme length of waist, as measured from A to F on Fig. 1, Plate 3, and mark the line from G to 17, perpendicular to line A . . . 18. From G to F is about 2 inches. From F to K about 1 3-4 inches. Draw line from 18 to 4 about 4 1-2 inches. Place the corner of the square (the common square used by Tailors) at A, letting the long arm extend to F, and draw lines by it from A to *a*, and from A to F. On line A F take a distance from A to C, equal to the measured distance from A to C on Fig. 1, Plate 3. Take also a distance from A to D, equal to the measured distance from A to D on Fig. 1. Take a distance in like manner from A to E and from A to F. These points A, C, D, E, and F, now represent, *on the cloth*, the same points that those letters represent on Fig. 1. You will now draw line C W at right angles with line A F. On this line take a distance from C to M equal to "width of back," that is the distance that was measured from B to V on Fig. 1, mark line M N at right angles with C W. These lines C W and M N being now ascertained, and marked upon your cloth, you will place the instrument (having previously adjusted it according to directions given), letting the circumference touch both the lines C W and M N, in the manner represented.—Being thus placed the "circular measure" will occupy *identically* the same position *on the cloth*, that the scye-joint of the person has *on his body*; and by applying the various measures, *around this "circular measure"* in the same manner in which they were taken *around the scye-joint* of the person, the most exact fitting can be secured.

Having placed the "circular measure" as above directed, you will move one arm of the "shoulder-regulator" to point A as represented in Diagram. Mark around the "circular measure" with chalk, and draw a line on the edge of shoulder-regulator from G to L.

You will now apply the measures you have taken as follows: MEASURE No. 1.—Beginning at A top of back, pass the tape around the "circular measure" in the direction indicated by dotted lines, continuing it until the length of measure terminates on the arm, on line G L, as at P, adding a half inch to length of measure. After the point P has been established—being the point where measure No. 1, terminates, you will lay the instrument aside. Then draw line B O at right angles, with line A F, and passing through the centre of the circle made around the "circular measure;" next draw line Q R, through centre of circle, and at right angles with B O; (the points Q and R are points of the circle, line Q R being a diameter). Draw a line from A to the circle at R, and one from P to R.

You will now complete the drafting of back. Form from A to 8, about 2 1-4 inches, and a little curved. Form back-scy, —from V

to 1 is about 1-2 an inch, from V to 2 about an inch. Draw line from 2 to E, —from E to 5 is about 1 3-4 inch. Form from 8 to 1; from 1 to 2; from 2 to 5; from 5 to K; from K to 4; from 16 to 18 as represented. From E to F is slightly curved.

You will now cut out the back, after doing which notch it at Y, at D, and at E. Place it in its "second position," see back, on D, for the purpose of getting top of side-seam at 2, and forming scye from 2 to Q. To effect this, take the half distance from A to C, which will be at 6, draw a line from 9 to *a* touching the circle at 7, and crossing line C A at 6, and extending out on the board. With pivot at V, move top of back from A to *a*, on line drawn from 9 to *a*. You will now form the scye from 2 to Q, and top of side-seam from 2 to 3 as represented. Whilst the back is in this position, the distance from *a* to P, passing around the circular measure, is exactly equal to measure No. 1, *without adding the half inch*.

Place the back in the *first position*, and replace the instrument as at first pivot at V, draw in the back from F to *f*, until measure No. 4 commenced at P, meets it, as at *f*. (Note, to avoid confusion this *third position* of back is not marked). Whilst the back is in this position, mark the bottom of side-seam from 8 to 11, as represented; apply measure No. 3, from P, (back pivot at V) draw in the back from E to *e*, until measure No. 3, meet it as at *e*. Place the back in its *fourth position*—apply measure No. 2, pivot at *e* from P to *d*. This measure gives the proper round of side-seam. Form the side-seam from 2, by 10, 9, 8, to 11, as represented; apply No. 7 from *e* to G, making a sweep as represented; apply No. 5, from P to G, making a sweep as represented. Where these sweeps intersect, is the hollow of the side above the hip; apply measure No. 6, for length in front, from P to 22, as represented; apply the breast measure from *d* to W, and the waist measure from *e* by G to 15. You will now place back in its *fifth position*, making point A to fall on P, and the notch which was made at Y, on line A R, to fall on Y on line P R. Form shoulder seam from 7 to 5, and form the scye from 5 to 6, and from 6 to Q, as represented. You will now take a point S on line G L, half distance from P to "circular measure;" this point S is however regulated entirely by fashion. At S mark line T S perpendicular to G L. Form the neck from P by 7 to 20, touching line S T at 4. From W where breast measure terminated, to 12 is about 2 1-2 inches, or according to fashion. Form front from 20 by 12, and 15 to 14. Form waist-seam from 11 by 17 to 14 as represented. As garments are by present fashions extremely long in waist, you will either sketch the waist at 17, or split the pattern from 17 to G, as in diagram. The body can now be cut out.

## THE SKIRT.—Letter E.

Place the short arm of square on line C W, letting the long arm touch 11, and draw line from 18 by 11 to 19; draw line from 11 to 14, for spring of skirt, and form top of skirt from 11 to 21. From 11 to 21 is the size required, and 1 1-2 inch for fullness; mark line 24 to 25, about 1 1-2 inch from line from 18 to 19, and parallel with it.

Form skirt from 11 to 24 as represented. Form 25 to 23 is about 5 inches; from 26 to 22 is about 2 inches. Form the points given form the skirt as represented.

## THE SLEEVE.—Letter F.

*Upper Sleeve.*—A B and A C, are the edges of cloth. Take a distance equal to the diameter of "circular measure," and with pivot at A, sweep from 1 to 2. With same distance, and pivot at 2, sweep from A to 3. With same distance, and pivot at 4, where the sweeps cross, sweep from 5 to 6. With distance from 4 to 9, and pivot at 4, sweep from 8 by 9 to 7. Form from 10 to 11 as represented. Apply measure for length of sleeve to elbow from 8 to 12, deducting for width of back, and also to 18 for length of sleeve. Form 12 to 13 is 5 inches; from 13 to 14 is 2 inches. Draw line from 12 by 14 to 18. Form from 12 to 18, and balance of sleeve as represented. *Underside Sleeve.*—Mark a line from 8 to 16 as represented, equal to half the distance from 4 to 17. Form from 16 to 11 as represented.

[See Back G.

The object of this Diagram is to show the learned, how and where he may commence drafting to best advantage, with side-seam of forepart from him. D A and A B are the edges of cloth, the nap running to the left. From A to *a* is one inch. From *a* mark off a distance to *b* equal to the distance from F to C on back A; draw the line C W at right angles with A B, edge of cloth, extending the line in the board from you. As you will now have to use the other back, you will slap the two together so as to transfer the chalk lines from one to the other. This done place the one to which the lines have been transferred in the position represented on diagram; making the line C W on the cloth to range with the line drawn on the board, and making the back to touch the edge of cloth at *b*.

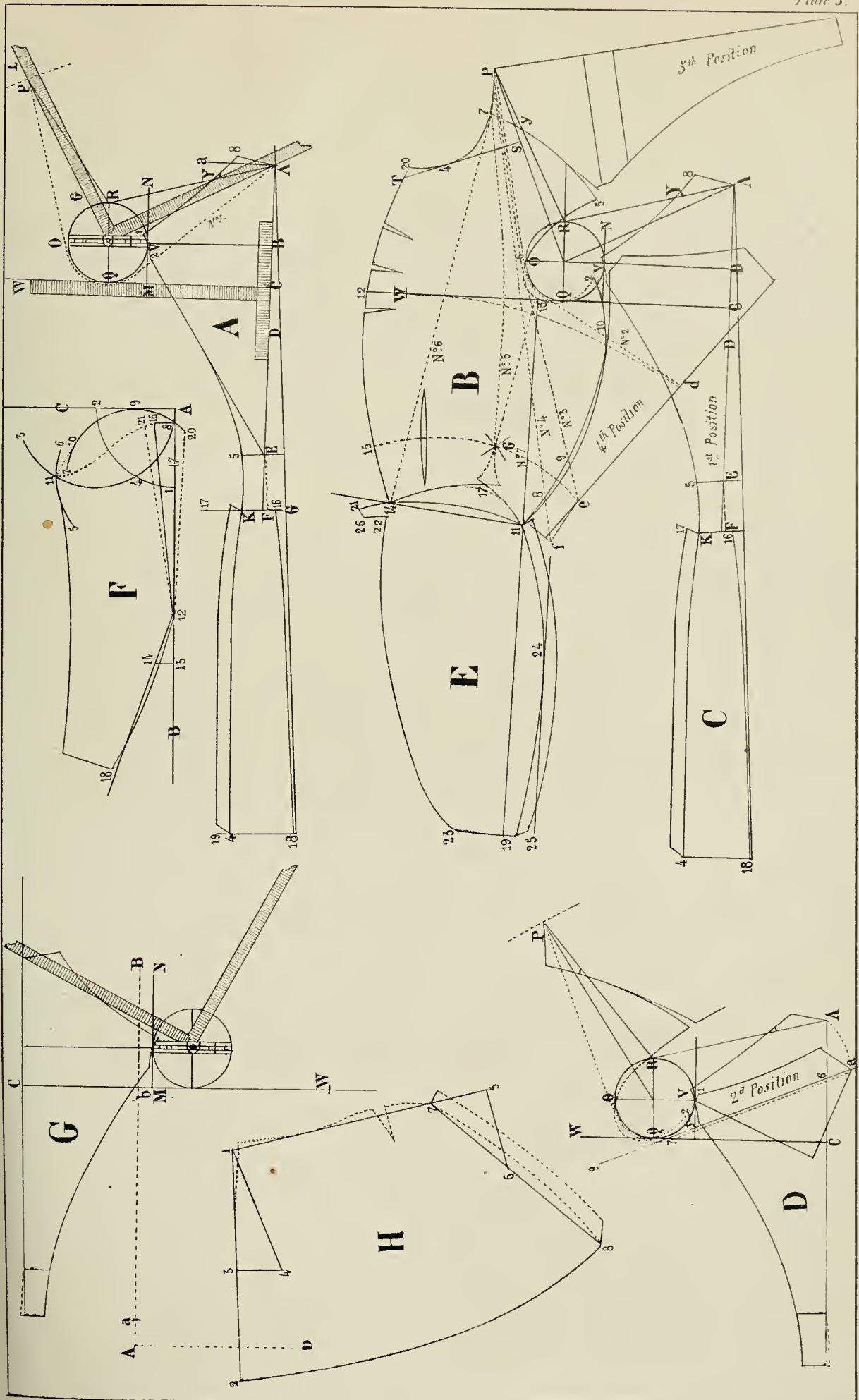
## FROCK-COAT-SKIRT H.

Draw line from 1 to 2 length of skirt in front. From 1 to 3 is 6 inches, from 3 to 4 is 2 inches; draw line from 1 to 4, and 1 to 5 at right angles from 1 to 4, from 1 to 7 is the size of waist allowing about an inch and a half for fullness. From 7 to 5 is 4 inches, draw line from 5 to 6 at right angles from 1 to 5, from 5 to 6 is 6 1-2 inches; draw line from 7 by 6 to 8, from 7 to 8 length of skirt, form balance of skirt as represented.

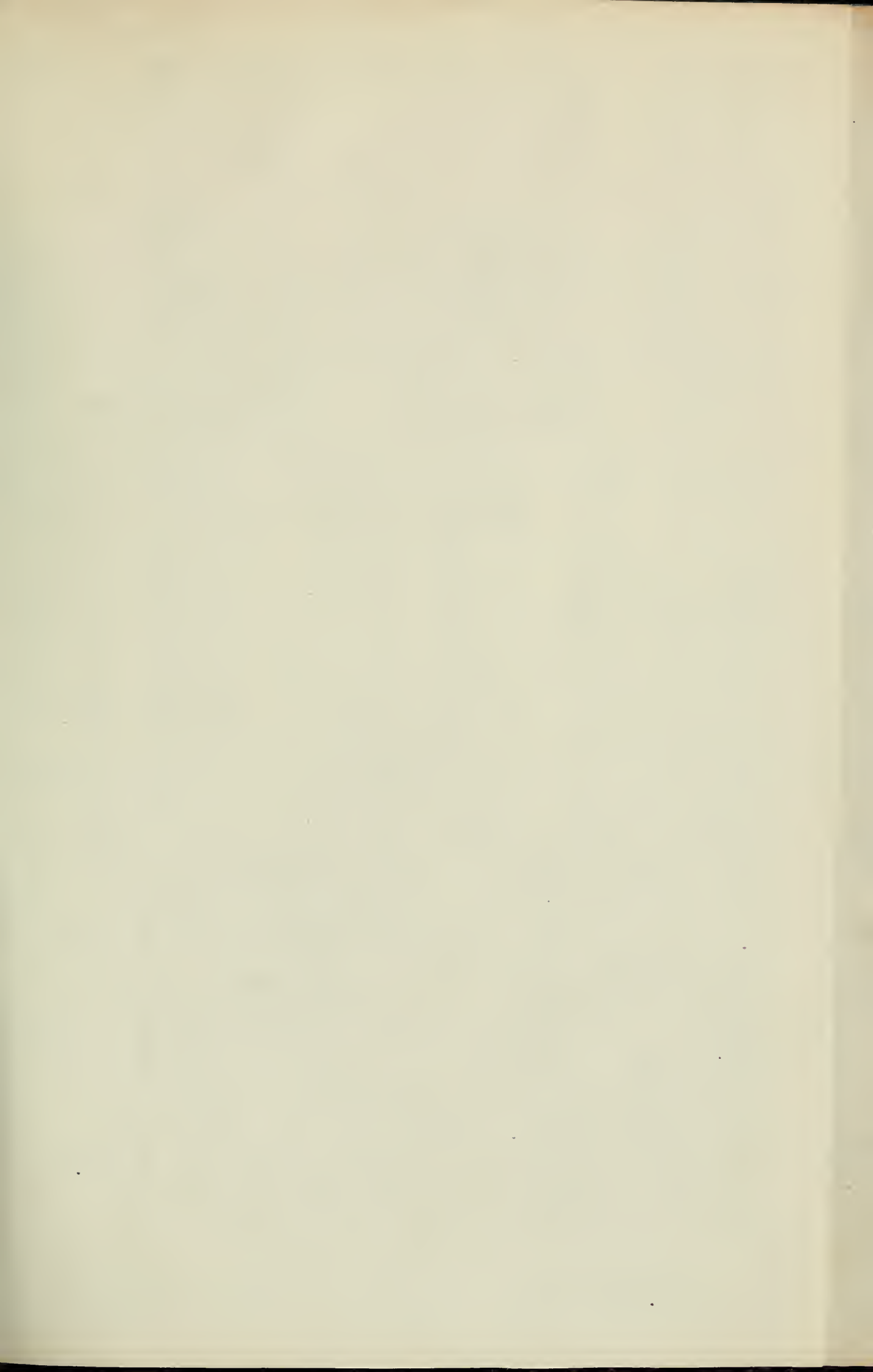
*Note.*—By mistake in the *Lithography*, the wrong side of Skirt H is placed next you; you can draft it in a reversed order, turn 1-2 next to you.

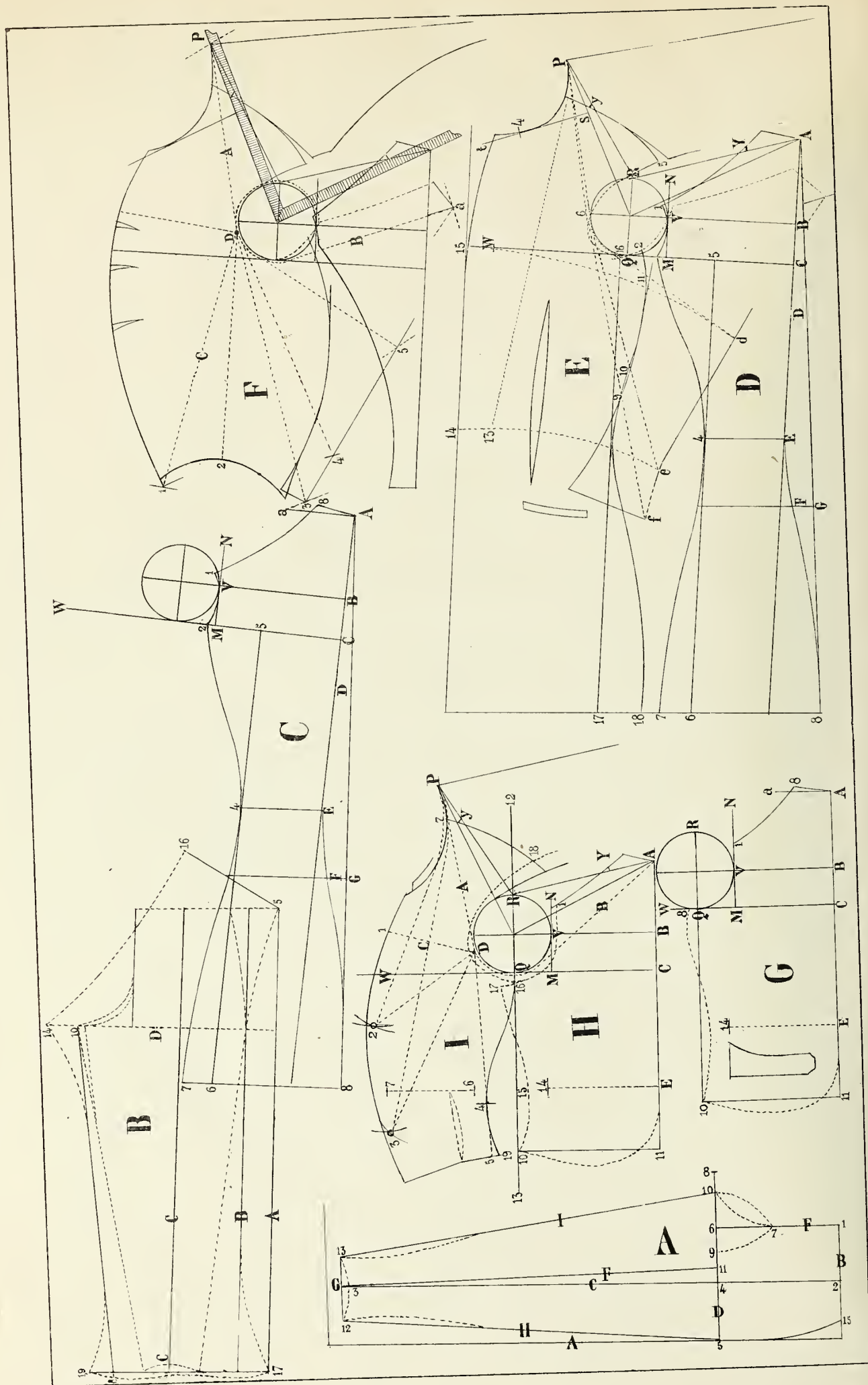
*Note.*—As the present fashion requires the collar to set low on the neck behind, trim the back and forepart from P by 7 about 1-2 an inch tapering on to 4.













# EXPLANATION OF PLATE 4.

## DIRECTIONS FOR DRAFTING A SACK.

(See back C,—Plate 4.)

The general directions given for drafting a Dress Coat, will apply also to a sack. The only differences that need be noticed occur in drafting the following parts: (See back C.) You will form back scye on line CW, the point 2 being a half inch out from M. From E to 4 is one third of waist measure. Place the short arm of square to range with CW, and the long arm touching point 4, and draw line from 5 by 4 to 6. From 6 to 7 is about 3 inches. Form back as represented from 1 to 2, from 2 to 4, from 4 to 7, and from E to 8. Now place the back in its "second position" (to do which see directions in Dress Coat,) and form the scye from 2 to Q, and establish top of side-seam at 2; now throw in the back at the waist with pivot at V, and apply measure No. 4, No. 3, and No. 2, to *f*, to *e*, and to *d*, and note the points 9, 10, and 11, where these measures cross the back. Apply breast measure from *d* to W, and waist measure from *e* to 13. The distance from W to 15 is about 2 inches, and from 13 to 14 about 1 1-2. Now place the square with short arm ranging with CW and long arm touching 9, and draw line from 16 to 17. From 17 to 18 is about 3 inches. Form from 2 by 11, 10 and 9 to 18 as represented, and the balance of sack as represented.

## AN APPROVED METHOD FOR TAKING MEASURES.

(See forepart F, Plate 4.)

This Diagram is designed to illustrate a new and very convenient method of taking and applying certain measures.

You will take three measuring tapes of about twenty inches length each, and attach them together by one end, with the inches running out from where they are connected—for convenience call these tapes A B and C, see on draft.

In using them in taking measures, you will place the connection of the three tapes in front of the arm, slightly below the centre of armpoint, as at D on Fig. 2, pass line A to socket bone, and B, passing under the arm and up to same point (socket-bone or A in Figure 1, Plate 2.) note down the number each of them draws, counting from the connection; hold these two firmly on socket-bone, while with your right hand you pass strap C to sweep in front to 2, to 3, to 4, to 5, and then around the scye, and back again to connection at D. Holding this last measure (the scye-measure) firmly at D, you will mark along the tape at V, as heretofore directed, for width of back, and take width of back. The points C, D, E, and F, are established in the manner herein before directed. After you have drafted the back, and placed it in its second position, directions for which have

been given, on plate 2, on back D, you will apply the measures above obtained. Commence at *a*, and place strap B at *a*, with the number it calls for upon point *a*; pass the strap around to be, "circular measure," and establish point D at the connection of the straps. The number drawn by strap A will establish point P. Keeping the connection at D, you will apply strap C to sweep in front to 2, to 3, to 4, and to 5, according to the measures taken. The "circular measure," will represent the one taken around scye.

## DIRECTIONS FOR MEASURING AND DRAFTING A VEST.

(See back G, Plate 4.)

Before taking measure for a Vest, make a mark on the person, (see plate 2, figure 2,) as at 3, where you intend the lowest button to be, and at 2, where you intend the upper button to be. Place the connection of the three tapes or straps on the person, in front of the arm, slightly below the centre of scye, as at D on forepart. Extend strap A up to socket-bone, and strap B around scye and up to same point. Holding these two with the left hand at socket-bone, take the following measures with strap C:

*First*.—Across the breast to 1, then to the mark made at 2, then to mark at 3, then to hollow of waist at 4, and to 5 for length. Then pass the strap around the scye, by V, and back to D. While the strap is in this position mark the edge at V for width of back, and take width of back from B to V. Point C is established as in Dress Coats. Measure from socket-bone to mark at 2, and to mark at 3, on figure 2; take waist and breast measures as in Dress Coat.

## VEST BACK G.

You will draft the back, first: let line from A to 11, represent fold of cloth; lines CW, MN, BV, and QR, are obtained as in Dress Coats. From V to 1 is one and a half inch, from Q to 8 one inch. Extend from line QR to 10. From 8 to 10 is a measure taken from D to 5. Form back as represented; draw line from 10 to 11, cut out the back from 1, V G, to 8.

Let line from 12 to 13 be edge of cloth; place back H as in Diagram, with line from R to 10 lying on edge of cloth. Extend line CW on the cloth, and place the circular measure at width of back as directed in Dress Coat. Place strap B at A, the number it drew, adding *half an inch*, being placed on point A, continue it around the circular measure to D, and extend strap A up to P, make a mark at D, and with strap C, make a sweep as at 1, at 2, at 3, at 4, and at 5, according to measures taken. From P apply the measures taken from the socket-bone to 2 and to 3, making sweeps as in diagram.

Where these sweeps intersect will establish the front of the Vest, throwing it towards you or from you as the shape of the individual may require. Form front of Vest as represented. From 7 to 6 is one fourth of waist measure, and from E to 14 is one fourth of waist measure. From 14 to 15 is allowed for fullness; from Q to 16 is about three fourths of an inch; from 8 to 17 about 1 inch. Form scye as directed in Dress Coat; but as a Vest requires the scye to be larger, you will trim it around from 1 by 16 to 17 on back, and from 18 to 16 on forepart, as per dotted lines on Diagram. Form the forepart from 16 by 4 to 19; form back from 17 by 15 to 10.

It will be seen that the back laps over on the body about an inch from 16 to 17; this is to give the forepart that advantage of the back which is necessary in a Vest.

## FOREPART PANTS OF DIAGRAM A.

Taking measures for pants in the usual way.

A is the near edge of the cloth, B the top; on line B at one fourth size of hip measure make a dot at 1, at half distance from 1 to the intersection of lines A and B make a dot at 2; draw line C from 2 at the same distance from A about the length of pants measure, from point 2 on line C the whole length of pants and make a dot as at G, and back on the same line the length of in-seam from 3 to 4 less half an inch; place the square on line C at dot at 4, and draw line D, and continue it from dot at 4, to line A at 5, on line D at the same distance from 5 to 4 make 4 to 6, draw line E from 6 on D to 1 on B; make from 6 to 7 and 6 to 8, the same distance from 4 to 6, sweep from point 7 from pivot 8 to 9, and from 7 from pivot 9 to 10, and by same distance sweep from 7 to 10, at half distance from 5 to 10 on line D make a dot at 11, and draw line F from 11 to 3, and draw line G square across line F by dot at G, and make point at 12 and 13, on line G at about 2 1-2 inches; each from point 3 draw a line from 12 to 5 and 13 to 10 lines H and I, from 1 to 15 on line B one fourth waist measure.

## HIND PART OF PANTS DIAGRAM B.

Draw line A on edge of cloth, and B parallel with A at about 1 1-4 inch distance, and C parallel with B, at the distance from 5 to 4, on line D diagram A, place line C diagram A, on line C diagram B, and continue lines G and D, from 10 to 14 on line D is the distance from 9 to 6 on forepart A, point at 10 sweep from 15 to 16; from 15 to 16 is one fourth waist measure, one inch added; form from 14 to 16 and add from 17 to 18 on line G is 11 1-4 inches, for common size, draw a line from 10 to 18; from 18 to 19 is an inch, and a quarter, form the rest of diagram as represented by dotted lines.







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